Resources for Science in the Early Years

Young Children articles and NAEYC books and resources


Other articles, books, and resources


STEM (Science, Technology, Engineering, and Mathematics) fields are the core of a technologically advanced society, and they are the fields of study that are declining in the U.S. education system. The National Aeronautics and Space Administration (NASA), the National Science Foundation (NSF), and the National Academies, among others, are working to improve STEM education in the United States. These organizations have proposed a national action plan, initiated science-focused programs, implemented curricula, and suggested federal policy changes in an effort to increase the number of people studying and pursuing careers in the STEM fields. These organizations and others are lobbying to ensure that STEM subjects receive more attention and more funding in schools. They also encourage educators to use an integrated curriculum and to connect science and math with other disciplines.

The STEM Education Caucus supports students, teachers, and government agencies involved in pursuing STEM-related programs. The Journal of STEM Education is a peer-reviewed journal for educators in these fields, focusing on real-world case studies with practical applications. The STEM Education Caucus focuses on strengthening education for K–12 and the workforce. The National Science Foundation has STEM projects for K–12 students: Discovery Research K–12 and NSF Academies for Young Scientists.

Discovery Research K–12: www.nsf.gov/funding/pgm_summ.jsp?pims_id=500047
Journal of STEM Education: www.jstem.org
National Science Foundation (NSF): www.nsf.gov/nosb/stem/index.jsp
NSF Academies for Young Scientists: www.nsf.gov/funding/pgm_summ.jsp?pims_id=13677
STEM Education Caucus: www.stemedcaucus.org
STEM Education Coalition: www.stemedcoalition.org

* Selections by Peggy Ashbrook, preschool science teacher, author, blogger, and editor of The Early Years column in Science and Children from the National Science Teachers Association. Special thanks to Peggy for contributions to this resource list and guidance on the science cluster.
Online resources

Council for Environmental Education (CEE) provides programs and services to promote environmental education for young children and educators. CEE’s new initiative, Growing Up WILD: Exploring Nature with Young Children, guides educators as they engage young children in exploring wildlife and the natural world. It focuses on children ages 3–7 and features activities that are developmentally appropriate.


Exploratorium, a hands-on museum based in San Francisco, offers multimedia resources including a digital library, professional development resources, workshops, programs, and hundreds of activities with accompanying explanations of how the science behind them works. You can’t beat the impression a cow eye-ball dissection makes on a second-grader (which can be watched online).

http://exploratorium.edu

Ladybug, a magazine for young children, features seasonal articles and poems that include science concepts. Readers will also find science activities and reading suggestions.

www.ladybugmagkids.com

Mother Goose Programs: Math & Science uses books, hands-on explorations, and standards to create its math and science programs. The site offers numerous free articles in its resources section and a list of science books for preschoolers.

www.mothergooseprograms.org/math_science.php

National Geographic Little Kids brings beautiful photography to young readers in a magazine for children filled with animal stories, science activities, puzzles, and games. The Web site also includes a special section for parents on how to best use the Web site and the magazine.

http://kidsblogs.nationalgeographic.com/littlekids

National Science Teachers Association offers a wealth of science resources, lessons, discussions, forums, and newsletters for the primary grades and up. Its Web site features a section for new science teachers. It also has a blog focusing on teaching science to young children, which covers a vast number of topics, from standards to studying motion to teaching strategies. The association offers a peer-reviewed journal for early childhood and elementary educators.


National Wildlife Federation publishes two magazines for young children, Your Big Backyard and Wild Animal Baby. Each issue has pictures of baby animals, suggests science activities, and features games to encourage learning and science.

www.nwf.org

Southwest Center for Education and the Natural Environment (SCENE) at Arizona State University connects the community, teachers, and students to science. Its Web site offers activities, explains scientific inquiry, and explores the scientific method.

http://scene.asu.edu/index.html

Try Science has experiment activities, video clips, and information on various science phenomena. It includes pages for teachers and parents and is available in multiple languages, including Spanish and Arabic. The parent page explains why science is so important and how parents can get involved.

http://tryscience.org

Tips for Using Online Resources

Look for these qualities in online resources to identify ones that are appropriate for engaging in scientific inquiry with young children.

1. Is the Web site part of a government or educational institution with some expertise? Find a second source to double-check the appropriateness of product-oriented Web site activities.
2. Was the activity tested in a classroom?
3. Does the lesson plan list related national, state, or local standards or those of professional associations?
4. Does the lesson plan list objectives or science concepts involved?
5. Are safety concerns addressed in the lesson plan—allergies, small objects, safe science practices such as eye protection?
6. Is there suggested dialogue or open-ended questions given as a model for the teacher?
7. Are science concepts reviewed so teachers can knowledgeably guide children?
8. Does the lesson plan include discussion time for observations and the reasoning behind them?
9. Are additional resources listed?
10. Is a suggested assessment tool provided or recommended?

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